Celtic Knots

Emily Wadholm

Celtic Knots

A Treasury of Applications

Emily Wadholm

Invariable

2018

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To my loving parents, who encouraged me to push the limits
and share the results with others.

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Part 1

Why

Introduction

Before explaining how to design a Celtic knot or what to do with it, one all-important question must be addressed: what *is* a Celtic knot?

A Celtic knot is a motif originally used in Europe as a decoration for mosaics and grave markers; later, with the introduction of the Catholic church, it was used in illuminated manuscripts. It is often characterized by parallel strings intercrossing in a weave-like pattern, with breaks in the weave throughout. Although Celtic knots depict strings, they are usually not, in fact, real strings; but representations.

This book is a look into how one can use the motif of Celtic knots in various art forms and formats, ranging from book borders to story illustrations, flip-art to wood burnings. The use of Celtic knots is both excitingly new and embedded in a rich culture. Any art with this motif looks like something one would find in a museum.

This book is split into three parts: *Why*, *How*, and *What*. You are reading the first part right now. The second, *How*, describes the process of designing Celtic knots. The third, *What*, comprises the bulk of the book; it covers various applications of Celtic knots, laying out examples in order from a completely self-contained piece of art to a side-decoration. For the most part, these applications are self-explanatory. However, it does help to have previous background knowledge.

The section on flip-art is designed to be examined at high speed, flipping through the selection on the right side until the end of the chapter, and then flipping in the other direction through the left side of the chapter.

After this is a small example of a landscape drawing composed entirely of Celtic knots. It is meant to be used as an example of a

completely self-contained painting, using Celtic knots rather than strokes, dots or other techniques.

The next three chapters illustrate ways Celtic knots can be used to enhance written texts. The first of these chapters presents a few poems accompanied by Celtic knots, meant to put a picture into the reader's mind before the poem is read. The second is a small children's story with accompanying Celtic knot illustrations. This chapter is an example of both Celtic knots used within the context of a larger whole and the uses of Celtic knots within an illustration. The final chapter in this section provides a short story with a Celtic knot border, demonstrating the use of Celtic knots in the background as a way of setting the mood of a story.

The final two chapters lay out different mediums for Celtic knots, including 3D knots and wood burning. These are meant to be a resource for further exploration of the usefulness of Celtic knots in mediums aside from drawing.

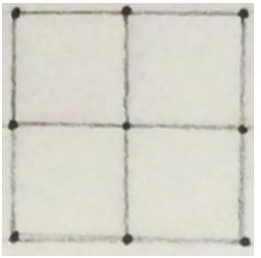
This book is not meant to be read solely as a source of entertainment but as a source of inspiration. After all, the ideas in this book encompass only a small part of the vast possibilities for applications of Celtic knots. Read with this in mind and be inspired to further explore the design, its origins, and its applications.

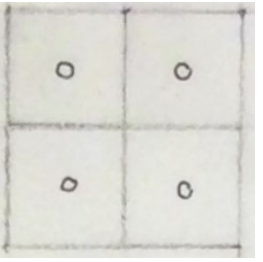
Part 2

How

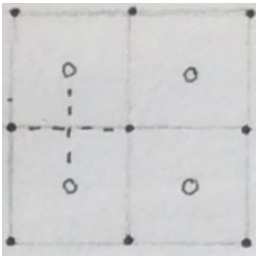
How to Create a Celtic Knot

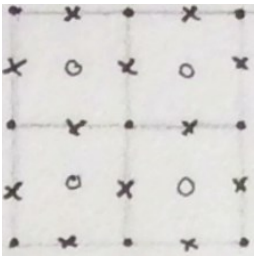
Before drawing or designing a Celtic knot, one needs to understand the grid system behind the knot. A common grid that is used is the rectangular Celtic knot grid made up of three parts, called point systems. The first two, the dot and O point systems, are very similar. They are each made of a square grid of points.



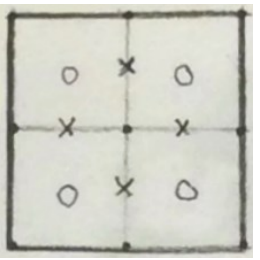


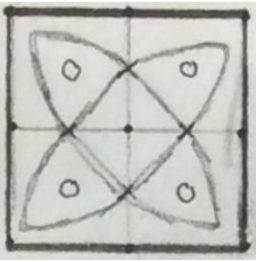
The X point system is composed of the points directly between the dot and O point systems. To create the grid as a whole, combine all three point systems. Now a Celtic knot can be designed on top of this grid. The basis of the Celtic knot is the string which winds through this point systems.





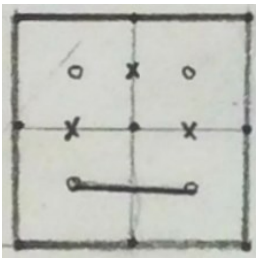
The string is like a magnet, moving diagonally from X to X in a straight line, always avoiding the dot and O points. The shape of the grid is determined by the number of spaces between dots on each side. This measurement is expressed in a width x height number, like 2x2 for the following grid.

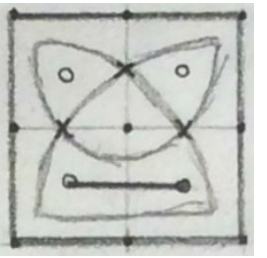




Once the shape of the grid has been determined, you can outline the string and mark where the string crosses by making parallel lines across each intersection. The string when crossing will always follow an over-under pattern. The original string line can then be erased, as well as the grid; only the outline will remain.

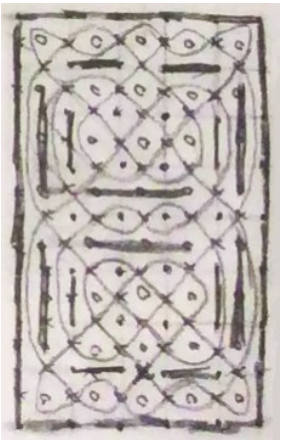
When designing or drawing a knot, you can shape the string by placing break lines. These break lines connect any two dots or any two Os horizontally or vertically; they are used to show that the string will not cross the X covered by the breakline. The string instead turns as if repelled by another magnet.

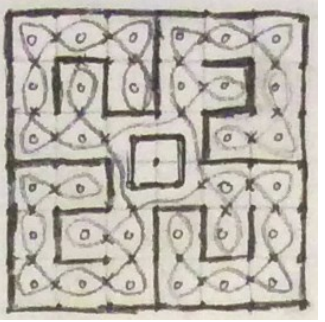




For instance, compare the knot design on this and the opposite page. They have much the same form, except that the second knot contains a breakline on the lower half of the grid, connecting two Os. Because of this breakline, the string's form has changed, and the knot has become distinct from the original.

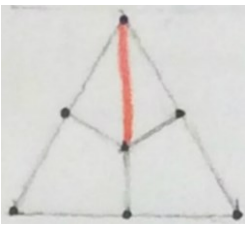
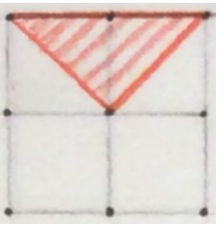
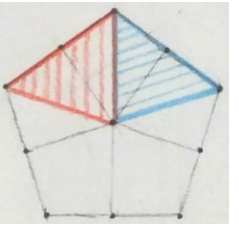
By using a larger knot grid, more complex and varied shapes can be created. Symmetry in breaklines unifies the design, while variety in spacing adds interest and removes monotony. Once pleasant shapes of break lines have been discovered, they can be reused throughout knots. When complete, designs will look much like those below.



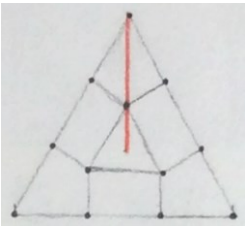
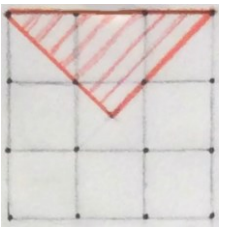
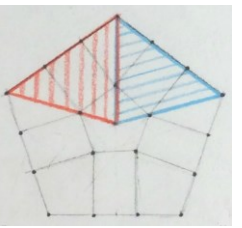


Variable Knot Grids

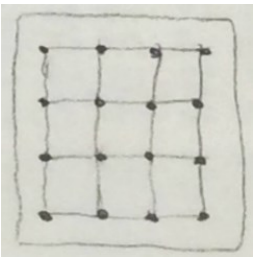
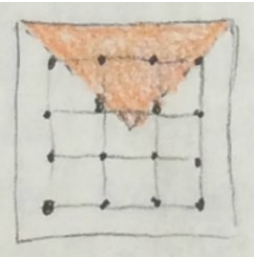
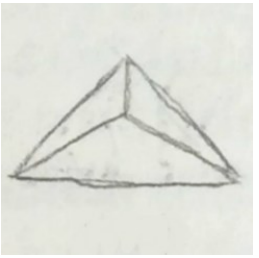
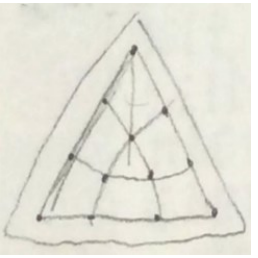
Just as in rectangular knot grids, variable knot grids consist of dot, O, and X point systems combined; the only difference is the shape of the grid. The vast majority of the blank spaces within the grid will continue to have a four-sided shape, with the occasional exception of the middle space.

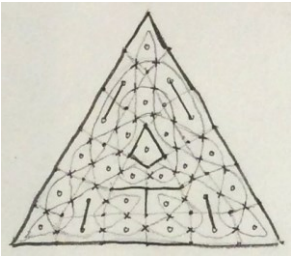
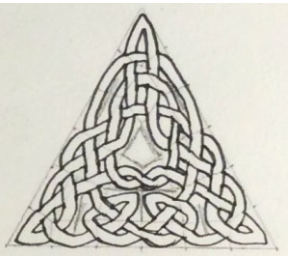
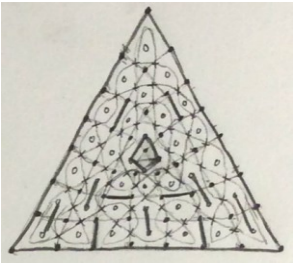
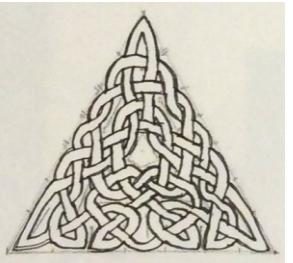
The best way to relate these grids to the rectangular grid is to imagine that a quarter of the normal grid was cut out, then either left out or put back in with several copies of itself. The remaining pieces are then taped together, forming a new shape of grid with the same basic components.

This concept is best understood through personal experience. Take a small square piece of paper and draw a 3x3 grid on it. Now fold or cut out a quarter of the grid and push the remaining three sides together. It should look like a 3D pyramid. Look at it from above and close one eye; The grid is now triangular.

Variable knot grids function in much the same way as rectangular grids. However, the string doesn't necessarily travel in straight lines. Because the grid is squished or stretched, the string will often travel in curves. When in doubt, make a sketch of a square grid on a piece of paper and fold it to make sure the string is traveling in the right direction. The following are a few examples of triangle grids, including both the underlying design and the final product.

Part 3

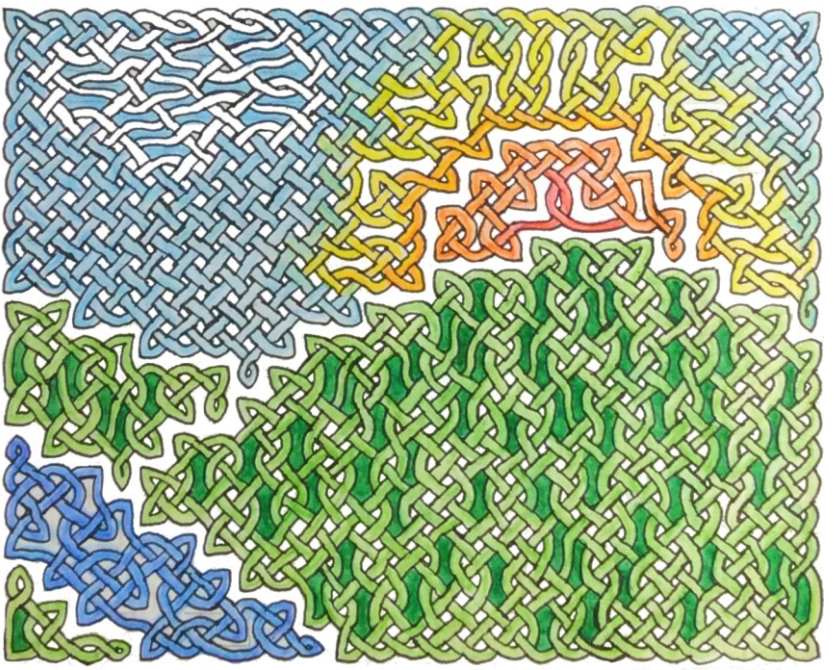
What

Flip Art

Flip pages this direction

Flip pages this direction

Landscape



Poetry

Bright petals shine each day
Glittering in sunlight as if to say
That the light which rises overhead
Has all the kingdoms on earth misled
To have them believe that this flower they see
Holds comparison to the sun in any degree

Far better, they smile, in the way that they do
Would it be to meet us than that old you-know-who
For *our* faces shine both the night and the day
While that fellow above hasn't yet earned his pay
All night he spends sleeping beyond the horizon
While people at home must their own cities brighten

Such a shame, they will say, if you happen to ask
That we must half the day spend our time in that bask
The sun shining bright brings us each day anew
But we'd rather some better lad follow us through.
So next time you see that bright flower awake
Remember to *never* bring up its namesake.

The cool drops of dew
Meeting rain from above
Bring to each waking day
A new balance of love
The streams on the rocks
Pounding wave after wave
The untamable waters
which no man may brave

Illuminated Manuscript

Story Illustrations

We come upon our heroine just as she determines to escape her prison tower, since no warrior has yet come to rescue her. Her plan is to slip out of the high cell and make her way to the shore, sneaking past the sleeping warden-serpent.

Unfortunately, things take a turn for the worse when the serpent wakes up and chases after.

Narrowly escaping, the voyager finds a sturdy boat and sets off towards her homeland. As she nears shore, however, she is attacked by the pursuing sea-serpent, seeking to usher her back into custody, or eat her if need be.

The ship is destroyed, and the survivor has no choice but to swim ashore a rocky island nearby

Once to the top of the island mountain, the traveler hitches a ride atop one of the native inhabitants, a giant petrol. Just as she sees the banner of her homeland atop a marking post, the cloud-serpent finds her once again and pulls her out of the air.

This time, however, the warrior fights back and succeeds, riding the serpent itself back to her home. She arrives a queen and rules over her kingdom fairly and justly until the end of her days.

The End

Short Story

Time for Tea

Jemima looked over her shoulder at the clock. "I'm late," she thought, as she turned back to the tea platter she was putting together.

Behind her, a portal materialized over the kitchen table.

She glanced back at the sudden disturbance and, unsatisfied with the placement of the portal, went into the living room to grab some pillows. She came back and carefully placed them around the kitchen table, then returned to the platter.

The portal swirled bright purple, bathing the room in mystical light. A sound emanated from it, somewhere in between a whimper and a scream, while the smell of lavender oozed into the room, filling it with a sickly-sweet fragrance.

In response to this exotic display of overwhelming sounds and smells, Jemima turned off her hearing aids and leaned into the steaming tea.

The portal began to twirl, faster and faster, generating a gust of wind that scooped up her papers and scattered them in a way that would make a librarian cry. The portal was soon twirling so quickly that the movement was imperceptible. Actually, the portal wasn't there anymore, as it had popped away to be replaced by a figure holding a cube-shaped device.

Jemima sensed the change and turned around. "Well, it's about time," she reprimanded as the figure collapsed onto the pillows, "I was worried I would have to go get me myself." She chuckled quietly at the clever one-liner and went about the business of carrying her guest into the sitting room.

* * * * *

The youth woke up sluggishly, willing to fall back into the sweet embrace of sleep and avoid the customary breaks and bruises she would have endured from landing so carelessly. As she reached for the aching throb on her forehead, she felt a sort of cooling salve spread over the injury. Her mind, beginning the long journey to cognizance, guessed that she had probably not dressed her own wounds. But if not her, then who?

She was distracted from this line of thought by a familiar scent in the air, one which was strange to find in such a place as – where was she anyway? She started up, eyes searching the room, keen on discovering the source of this out-of-place comfort.

"Orange ginger tea, dear, our favorite," Jemima said, placing a tea platter on the coffee table near her guest, "Hopefully it'll help with that nasty bruise on the head, bring down the swelling. That was quite an entrance, landing face first on a hardwood floor from five feet up. Be glad I thought to grab some pillows, or it'd be worse than bumps and bruises. Maybe next time check the figures before jumping. Hasty calculations don't save time."

She could do nothing but stare at her benefactor. How could this stranger know so much about her and her methods of travel? Perhaps she was not altogether a stranger. Maybe she was an enemy agent in disguise; or maybe a future friend of hers, here to return a favor that she hadn't yet loaned.

"Oh, I'm neither of those, dear," Jemima said, "and I'm not a mind-reader either. I'm simply here to... guide people in the right direction. It shouldn't take long for us to get on the same page, as long as we both remain open-minded. But before we start, I recommend some rest. Four straight jumps would exhaust anyone, but throwing a hard landing into the mix... Like I said, checking figures saves time and hassle. People who check their figures don't have to jump four times because they keep missing the mark by a mile."

She sat up blearily, pushing away the exhaustion, as well as a subtle headache that had snuck into her temple and begun forming a migraine. She was determined to explain her situation, regardless of whether this seemingly omniscient woman already knew about it. "I... I've got to leave, I have to go somewhere," she stuttered, "I have somewhere to be, something to stop."

Jemima smiled slyly. "Well, my dear, I'm afraid that somewhere will just have to go on doing something by itself."

She slumped back into the couch, trying to puzzle out her next course of action. Vague explanation had been a bust, and any further detail would be dangerous. It's not like she could just explain what was at risk and hope the stranger would forget about it. If this woman became involved because of her... there was too much at stake. Escape was starting to sound like her only viable option.

"It's important that I retrieve something from the room where I landed."

"Ah, yes, the controller. Don't worry, dear, it's in a safe place. I'll return it just as soon as that head's been patched up."

How did she know about the controller? Presumably, the same way she knew about everything else. Maybe she'd been talking in her sleep again.

"I'm ready now."

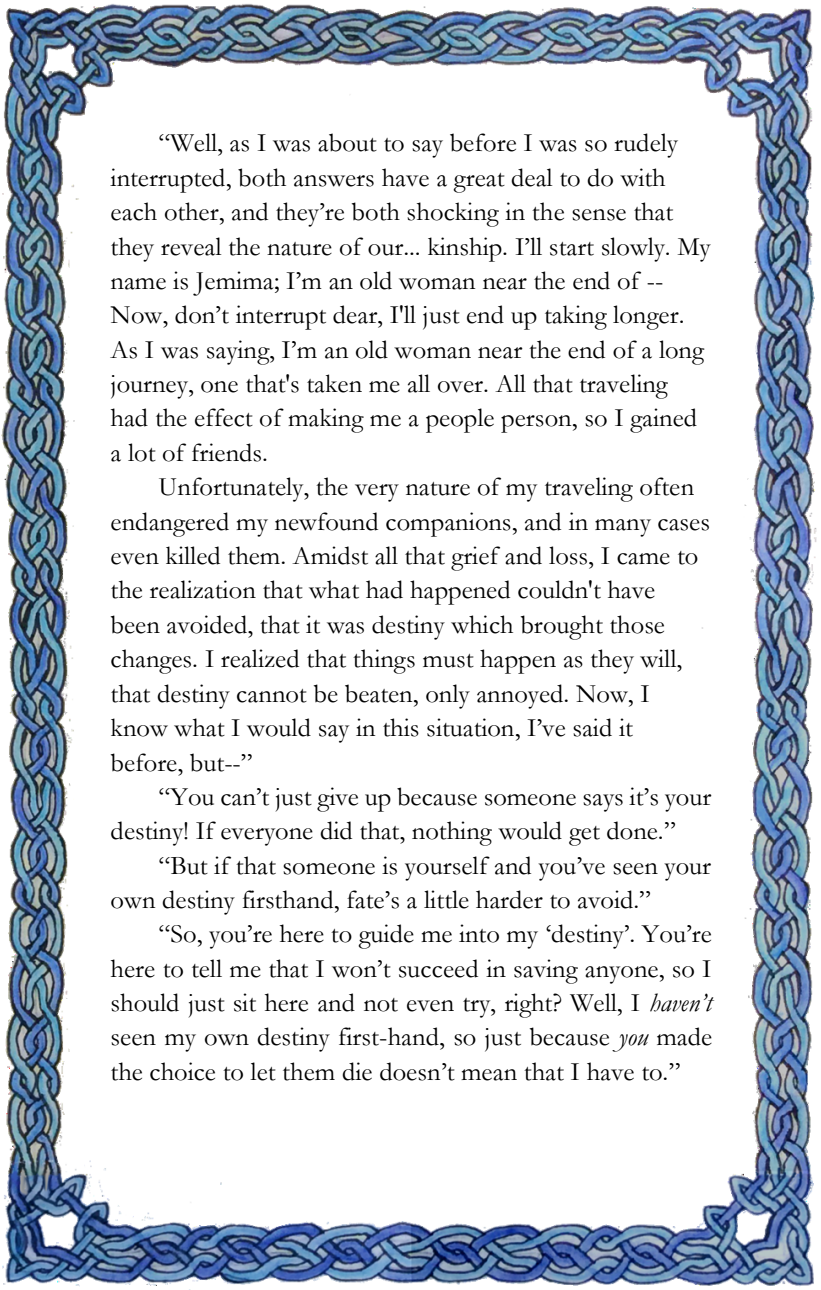
"I don't mean ready to leave, I mean ready to do the right thing."

There went her transport. She had no means of escape, and this blather was going to drive her insane. Time for some direct questions.

"Who are you, and what do you want from me?"

"My, my. We're just full of questions, aren't we? Well, I suppose now's as good a time as any. I'm afraid that the first answer might be a little shocking, but it's–"

"Shocking? How?" Her confidence was building as her brain finished rebooting. Expecting much too long of an explanation, she carefully picked up a cup of tea and biscuit from the platter and began to sip.



"Well, as I was about to say before I was so rudely interrupted, both answers have a great deal to do with each other, and they're both shocking in the sense that they reveal the nature of our... kinship. I'll start slowly. My name is Jemima; I'm an old woman near the end of -- Now, don't interrupt dear, I'll just end up taking longer. As I was saying, I'm an old woman near the end of a long journey, one that's taken me all over. All that traveling had the effect of making me a people person, so I gained a lot of friends.

Unfortunately, the very nature of my traveling often endangered my newfound companions, and in many cases even killed them. Amidst all that grief and loss, I came to the realization that what had happened couldn't have been avoided, that it was destiny which brought those changes. I realized that things must happen as they will, that destiny cannot be beaten, only annoyed. Now, I know what I would say in this situation, I've said it before, but--"

"You can't just give up because someone says it's your destiny! If everyone did that, nothing would get done."

"But if that someone is yourself and you've seen your own destiny firsthand, fate's a little harder to avoid."

"So, you're here to guide me into my 'destiny'. You're here to tell me that I won't succeed in saving anyone, so I should just sit here and not even try, right? Well, I *haven't* seen my own destiny first-hand, so just because *you* made the choice to let them die doesn't mean that I have to."

"I'm afraid it does. I know this is hard to understand, but destiny can't be changed. Fighting that will only make things worse. For both of us."

"I'm not listening to this. Where's my controller?" She leaped up and rushed into the kitchen with Jemima hurrying after as if expecting the girl to fall over at any moment.

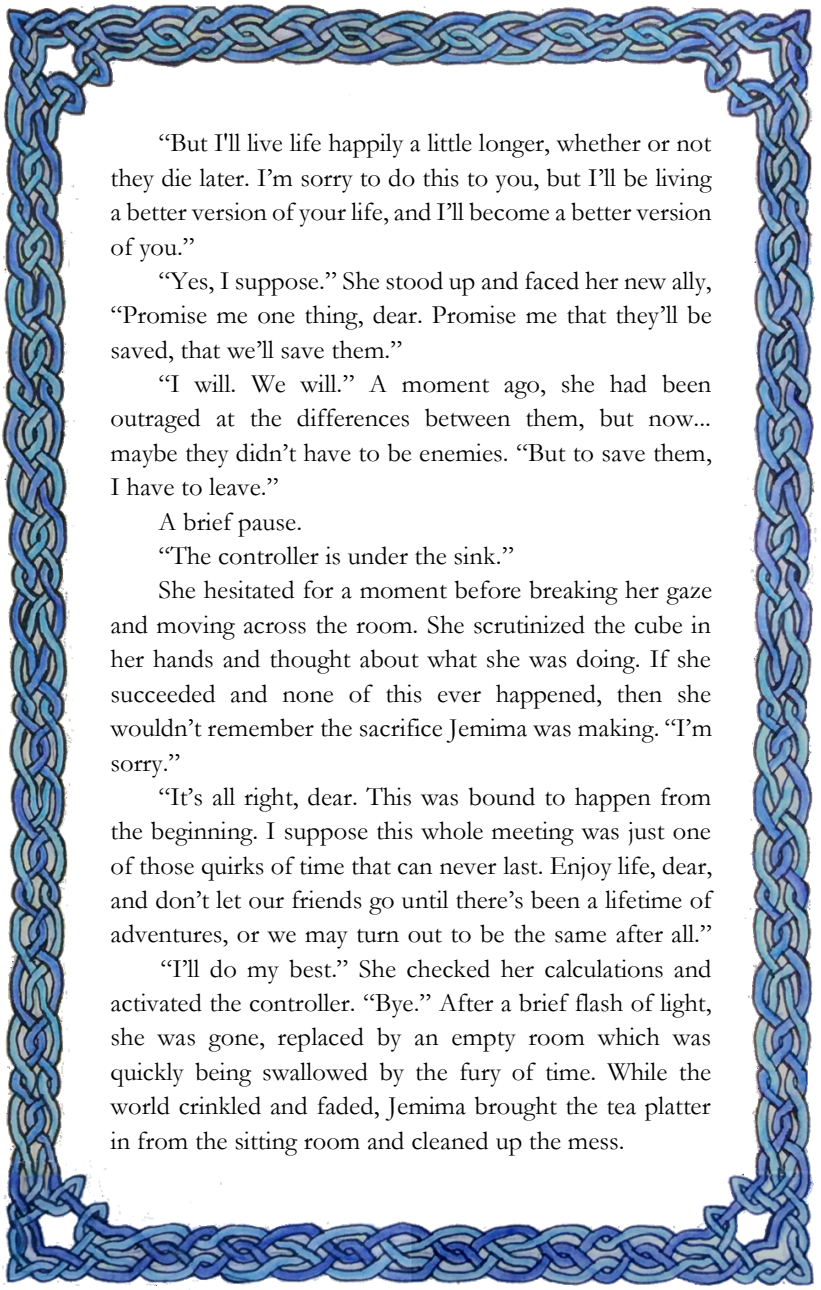
"Maybe we should sit back down, dear; head injuries can cause concussions, and that landing wasn't pretty," she rushed as she tried to herd her guest back into the sitting room.

The youth turned. "You should be worrying about yourself, not me. You know that if I find that controller and leave, then this whole situation won't work. It'll be a paradox. You're only here because I failed; so, if I go and save them, you won't exist anymore."

Jemima paused, suddenly unsure of herself. "That's right, dear. But they'll just die some other way; saving them will only delay the inevitable, and you'll have bought them a little time at our expense."

"I can't just give up without trying. I'm not you, and I never intend to be."

Jemima slowly sat down at the kitchen table and stared blankly at the wall. "If this does turn out to be a paradox, our memories will fade away and this won't have happened. Our friends will be saved, and the only remainder of our visit will be a headache and the faint taste of tea."



"But I'll live life happily a little longer, whether or not they die later. I'm sorry to do this to you, but I'll be living a better version of your life, and I'll become a better version of you."

"Yes, I suppose." She stood up and faced her new ally, "Promise me one thing, dear. Promise me that they'll be saved, that we'll save them."

"I will. We will." A moment ago, she had been outraged at the differences between them, but now... maybe they didn't have to be enemies. "But to save them, I have to leave."

A brief pause.

"The controller is under the sink."

She hesitated for a moment before breaking her gaze and moving across the room. She scrutinized the cube in her hands and thought about what she was doing. If she succeeded and none of this ever happened, then she wouldn't remember the sacrifice Jemima was making. "I'm sorry."

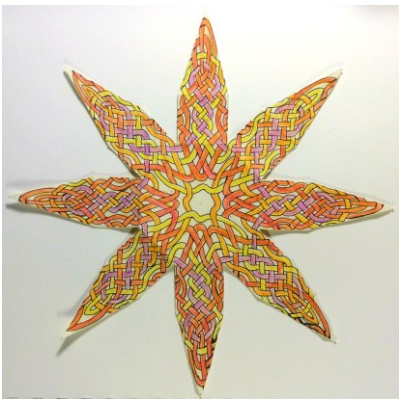
"It's all right, dear. This was bound to happen from the beginning. I suppose this whole meeting was just one of those quirks of time that can never last. Enjoy life, dear, and don't let our friends go until there's been a lifetime of adventures, or we may turn out to be the same after all."

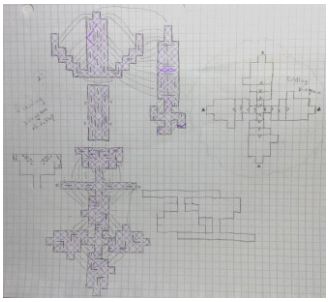
"I'll do my best." She checked her calculations and activated the controller. "Bye." After a brief flash of light, she was gone, replaced by an empty room which was quickly being swallowed by the fury of time. While the world crinkled and faded, Jemima brought the tea platter in from the sitting room and cleaned up the mess.

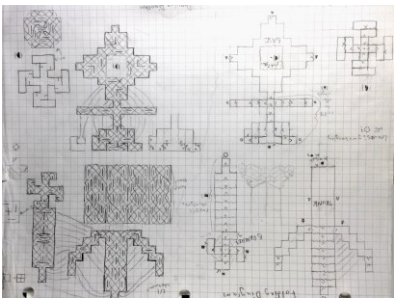
As the paradox closed and the world faded into nothingness, two words could be heard echoing from the kind old woman, two bittersweet and regretful words: "Goodbye, Jemima."

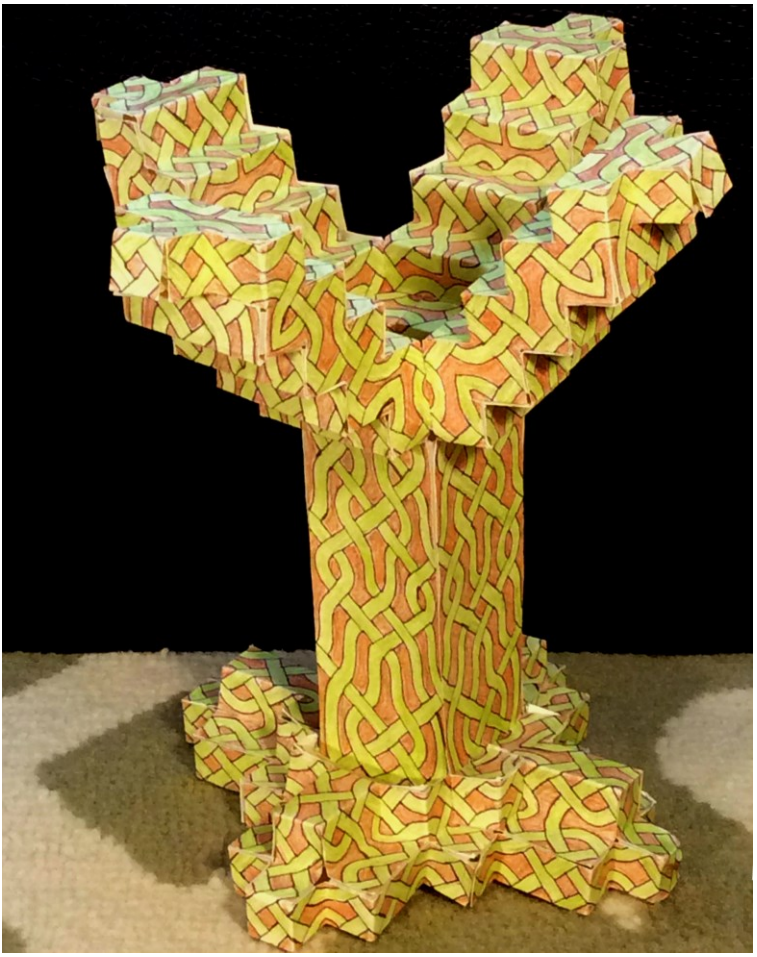
3D Knots

Celtic knots can be created on a 3D medium. To create a 3D Celtic knot, one must first design a 2D folding plan for the desired shape, then design a knot inside this shape. One technique is to let the knot escape the 2D design's border in such a way that the strings will line up once the design has been folded together.









Wood Burnings

Each of the following three wood burnings was made with a different technique. The first was drawn using a magnifying glass outside at high noon. Because of the large burn line, the knot is rather blurry. However, this blurry quality gives the knot a rustic look.

The second was created using a wood burning tool, with different heat settings for different darkness of strings. There is a great amount of freedom in shading. However, because the tool is in contact with the grainy wood, the lines in the string are disjointed and very sharp.

This last Celtic knot was created using a laser printer. The string is very smooth, but the wood is burnt in many places and the cut is too deep, allowing the pieces to fall out.

All of these techniques have their own benefits and pitfalls, so the choice should be made depending on the use of the product. Using wood as the medium for a Celtic knot gives the design a handmade quality.

References & Further Reading

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